

What is claimed is:

1. Apparatus for driving a modulator to modulate a light wave comprising  
a processor controlled modulator driver for receiving multiplexed binary data  
signals and generating high fidelity variable gain output signals with a low level of over  
5 and undershoot and having a high extinction ratio in response to receipt of the  
multiplexed binary data signals for driving the modulator to modulate the light wave.
2. The modulator apparatus set forth in claim 1 wherein the processor controlled  
modulator driver comprises  
a limited amplifier for receiving multiplexed binary data signals and for  
generating amplified and limited frequency output signals representative of the  
received multiplexed binary data signals.
3. The modulator apparatus set forth in claim 2 wherein the processor controlled  
modulator driver comprises  
a differential amplifier connected to an output of the limited amplifier for  
precisely controlling the amplitude and generating a low level of over and undershoot  
of output signals over a wide range of the limited amplifier output signals.
4. The modulator apparatus set forth in claim 3 wherein the processor controlled  
modulator driver comprises  
a processor controlled linear amplifier apparatus to the output of the differential  
20 amplifier for generating high fidelity output signals with low over and undershoot and a  
high extinction ratio for driving the modulator.
5. The modulator apparatus set forth in claim 4 wherein the processor controlled  
modulator driver comprises

a controller connected to the differential amplifier and responsive to a processor for selectively controlling the amplitude of output pulses of the differential amplifier.

6. The modulator apparatus set forth in claim 5 wherein the processor controlled modulator driver central processor unit controlled linear amplifiers comprises

5 a pair of linear amplifiers having a limited frequency response for filtering and thereby reducing the over and undershoot of signals applied by the differential amplifier to the input of the linear amplifiers.

7. The modulator apparatus set forth in claim 6 wherein the processor controlled modulator driver comprises

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a plurality of programmable resistor arrays for supplying power to the linear amplifiers.

8. The modulator apparatus set forth in claim 7 wherein the processor controlled modulator driver comprises

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memory means controlled by the controller for enabling the programmable resistor arrays to equalize gains of the linear amplifiers.

9. The modulator apparatus set forth in claim 8 wherein the processor controlled modulator driver comprises

detector means connected to the output of the linear amplifiers for detecting absence of linear amplifier generated signals as a loss of modulating signals.

20 10. Apparatus for driving a modulator for modulating data signals onto a light wave comprising

a limited amplifier for receiving multiplexed binary data signals and for generating amplified and limited frequency output signals representative of the received multiplexed binary data signals.

a differential amplifier connected to an output of the limited amplifier for precisely controlling the amplitude and generating a low level of over and undershoot of output signals over a wide range of the limited amplifier output signals, and

processor controlled amplifier means connected to the output of the differential amplifier for generating high fidelity output signals with low over and undershoot and a high extinction ratio for driving the modulator.

11. The modulator driving apparatus set forth in claim 10 further comprising

a processor controlled controller for enabling the differential amplifier to generate variable amplitude pulses at the output thereof.

12. The modulator driving apparatus set forth in claim 11 wherein the processor controlled amplifier means comprises

a pair of linear amplifiers having a limited frequency response for filtering and thereby reducing the over and undershoot of variable amplitude pulses generated by the differential amplifier.

13. The modulator driving apparatus set forth in claim 12 further comprising

a plurality of programmable resistor arrays for supplying power to the linear amplifiers.

14. The modulator apparatus set forth in claim 13 wherein the processor controlled driver comprises

a plurality of memory cells controlled by the controller for enabling the programmable resistor arrays to equalize gains of each of the pair of linear amplifiers.

15. The modulator apparatus set forth in claim 14 wherein the processor controlled driver comprises

5 a peak detector connected to the output of the linear amplifiers for detecting absence of linear amplifier signals as a loss of modulating signals.

16. Apparatus for driving a modulator to modulate multiplexed binary data signals onto a light wave comprising

a processor for controlling operation of the modulator driving apparatus,

10 a limited amplifier for receiving the multiplexed binary data signals and for generating amplified and limited frequency output signals representative of the received multiplexed binary data signals,

15 a differential amplifier connected to an output of the limited amplifier and controlled by the processor for precisely controlling amplitudes and generating a low level of over and undershoot of output signals over a wide range of the limited amplifier generated signals,

a pair of linear amplifiers connected in series to the output of the differential amplifier for generating high fidelity output signals with low over and undershoot and a high extinction ratio for driving the modulator,

20 a controller connected to the differential amplifier and responsive to the processor for selectively controlling amplitudes of the differential amplifier output signals,

a plurality of programmable resistor arrays controlled by the controller in response to instructions generated by the processor for supplying power to the linear amplifiers to equalize gains thereof, and

a peak detector connected to the output of the linear amplifiers for detecting  
5 absence of linear amplifier generated signals as a loss of signals for modulating the modulator.

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